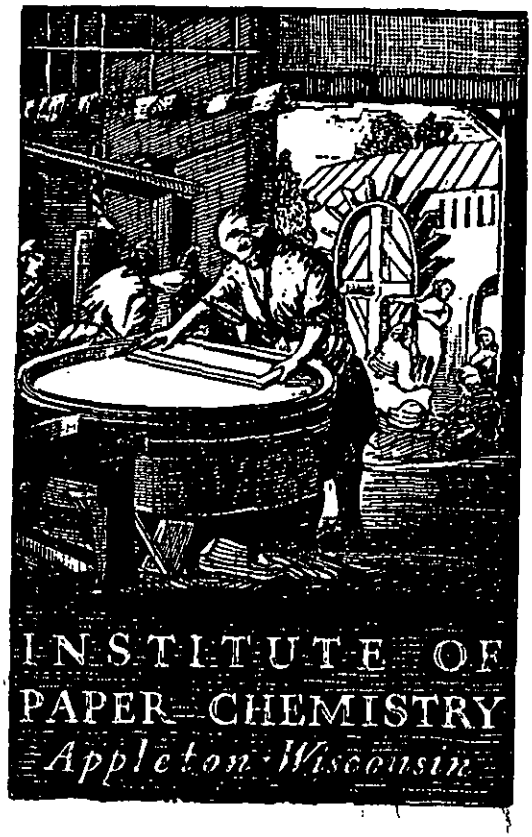

CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 131

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

June 1, 1958

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

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In conjunction with the F.K.I. Continuous Baseline Study, The Institute of Paper Chemistry has been directed to identify the participating mills by means of a scrambled system of code letters. Under this system, which was initiated in Progress Report 105, each mill is identified by a code letter different from that used for the previous month.

During the month of May, eighty-eight different sample lots of 42-lb. Fourdrinier kraft linerboard from sixteen different F.K.I. mills were processed at The Institute of Paper Chemistry. A tabulation of the number of samples classified according to mill may be seen in Table I.

TABLE I

DISTRIBUTION OF 42-LB. LINERBOARD SAMPLES

Mill Code	Samples Submitted
A	0
B	7
C	10
D	0
E	6
F	4
G	3
H	6
I	14
J	4
K	4
L	7
M	10
N	1
O	2
P	3
Q	4
S	3
Total	88

These sample lots were tested for basis weight, caliper, bursting strength, and Elmendorf tear. The average strength results for each mill may be seen in Table II and are graphically presented in Figures 1 to 5. In addition to a comparison of the mill averages for the various tests, Table II also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. The cumulative F.K.I. average is based on the results for the previous twelve months excluding the current period. Hence, in the case of the current report, it covers the period from May 1, 1957, to April 30, 1958. The F.K.I. indexes are obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

The F.K.I. index provides a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.3 lb., and the cumulative F.K.I. average basis weight is 43.1 lb. Hence, the F.K.I. index for basis weight determined in per cent as indicated above is 100.5% and signifies that the current F.K.I. average basis weight is higher than the cumulative F.K.I. average.

A comparison of the results in Table II and Figure 1 shows that the average basis weight results for all mills conform to the 42-lb. specification set forth in Rule 41. Mill B had the highest average basis weight of 44.1 lb. which was approximately 5.0% higher than the 42-lb. specification. The lowest average basis of 42.6 lb., which was approximately 1.4% higher than the 42-lb. specification, was associated with Mill P.

The amount by which the mills vary from the 42-lb. specification is as follows:

Mill Code	Per Cent
A	--
B	+5.0
C	+2.4
D	--
E	+4.5
F	+3.8
G	+2.6
H	+4.5
I	+2.6
J	+1.9
K	+3.3
L	+2.1
M	+1.9
N	+3.3
O	+1.7
P	+1.4
Q	+4.5
S	+1.9

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicated that the basis weight results have increased slightly from 43.1 lb. to 43.3 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the current mill averages varied from a low of 11.8 points for Mill L to a high of 13.5 points for Mills J and P. The current F.K.I. average is 12.8 points, slightly higher than the cumulative F.K.I. average of 12.7 points, as indicated by the F.K.I. index of 100.8%.

The average bursting strength values obtained for each mill are graphically presented in Figure 3. It may be observed in Table II and Figure 3 that the current mill averages for bursting strength ranged from

a low of 106 for Mills E and N to a high of 117 for Mill F. The current F.K.I. average bursting strength is 111 p.s.i. g., which is slightly lower than the cumulative F.K.I. average of 112 p.s.i. g.

A graphic comparison of the Elmendorf tear results shown in Table II for the various mills is given in Figures 4 and 5. These presentations show that Mill F had the highest average machine direction tear value of 377 g./sheet and that Mill Q had the lowest value of 293 g./sheet. It may be further noted in Table II that the highest cross-machine direction tear value of 411 g./sheet was associated with Mill L and that the lowest value of 359 g./sheet was associated with Mills I and Q. It may be observed also that the current F.K.I. average for machine-direction Elmendorf tear is the same as the cumulative and the corresponding average for cross-machine direction Elmendorf tear is slightly higher than the cumulative.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. averages for basis weight, caliper, and cross-machine direction Elmendorf tear are higher than their cumulative F.K.I. averages, whereas the current F.K.I. average for machine direction Elmendorf tear is the same as its cumulative F.K.I. average, and the current F.K.I. average for bursting strength is slightly lower than its cumulative F.K.I. average.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XX for Mills A through S, respectively.

The results obtained on special drum stock are presented in Table XXI.

In addition to the current and cumulative average, the mill factor and mill index are given for each mill. The cumulative mill average is the average test result obtained on the samples submitted by the particular mill for the previous twelve months excluding the current period. The mill factor and the mill index are obtained as follows:

$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor (\%)}$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index (\%)}$$

The mill factor and the mill index are a convenient means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. The reports also present a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry. These test data are presented and discussed on subsequent pages of this report.

It may be noted in Tables III through XXI that the test data include information about the sheet finish. The summarized results for the mills which submitted sample lots during the current period are as follows:

Mill Code	No. of Sample Lots W.F.	D.F.	Misc.
A	No sample submitted.		
B	7		
C	10		
D	No sample submitted.		
E	6		
F	4		
G	3[a]		

(Continued on the following page)

Mill Code	No. of Sample Lots W.F.	D.F.	Misc.
H	6		
I	14		
J	4		
K	3[a], 1		
L	7		
M	10		
N	1		
O	2		
P	3[a]		
Q	4		
S	3[a]		
R[b]	No samples submitted.		

[a] One side.
[b] Drum linerboard.

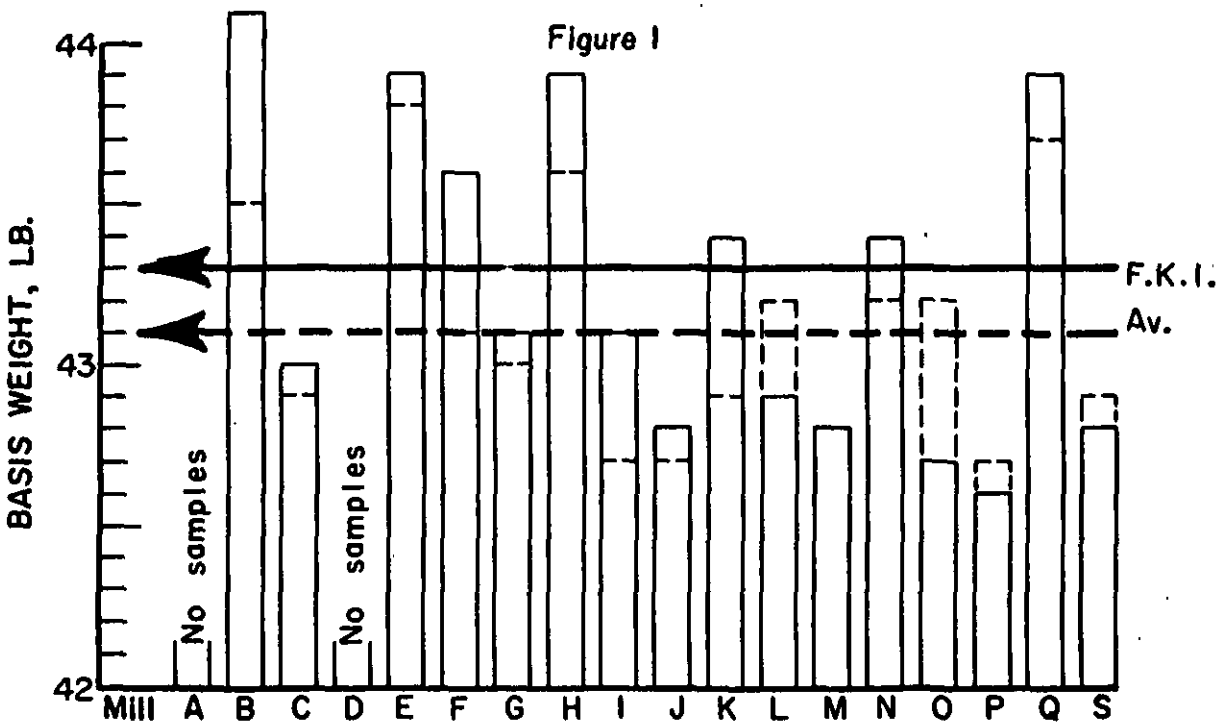
The results indicate that the majority of the participating mills are using a water finish on their 42-lb. linerboard.

TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--MAY 1 THROUGH MAY 31, 1958

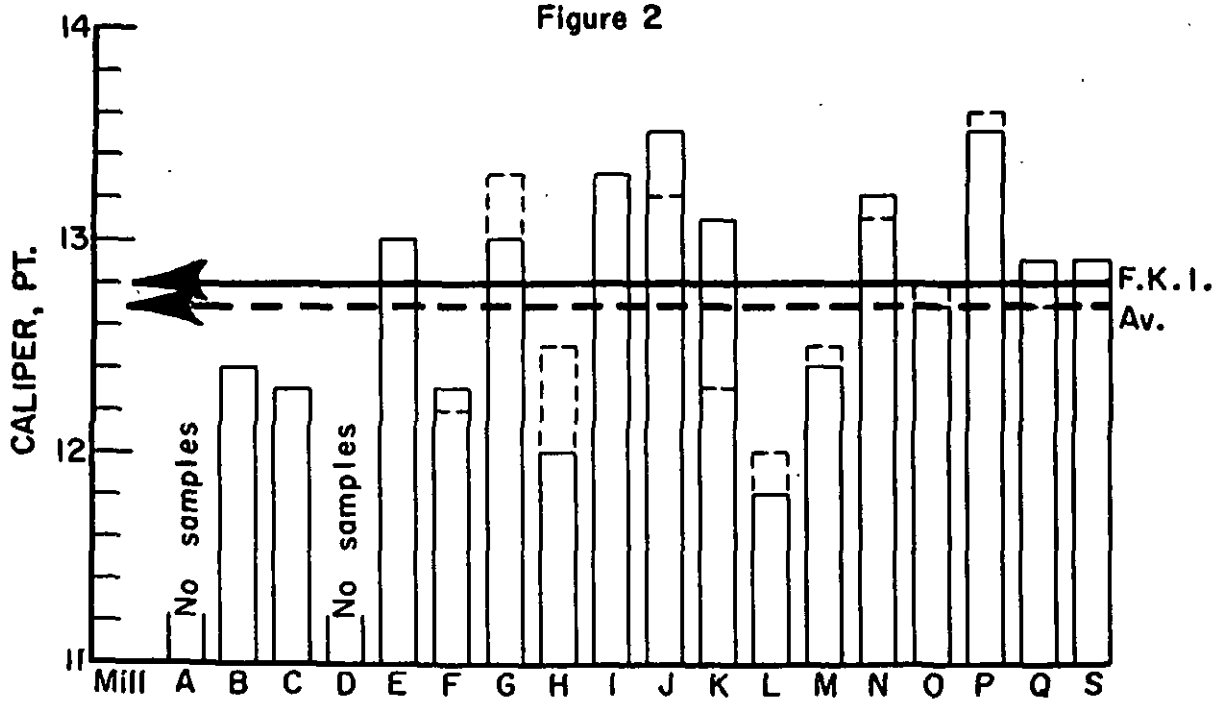
Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	Elmendorf Tear, g./sheet	
				In Machine	Cross Machine
A	No samples submitted.				
B	44.1	12.4	116	345	402
C	43.0	12.3	114	300	375
D	No samples submitted during the past 12 months.				
E	43.9	13.0	106	345	363
F	43.6	12.3	117	377	390
G	43.1	13.0	110	336	380
H	43.9	12.0	110	344	387
I	43.1	13.3	115	295	359
J	42.8	13.5	108	355	391
K	43.4	13.1	112	337	385
L	42.9	11.8	112	354	411
M	42.8	12.4	114	300	388
N	43.4	13.2	106	349	388
O	42.7	12.7	111	346	383
P	42.6	13.5	110	323	364
Q	43.9	12.9	111	293	359
S	42.8	12.9	110	320	370
Current FKI Average:	43.3	12.8	111	332	381
Cumulative FKI Average:	43.1	12.7	112	332	373
FKI Index, %	100.5	100.8	99.1	100.0	102.1

Figure 1



COMPARISON OF BASIS WEIGHT RESULTS
(Period May 1 - May 31, 1958)

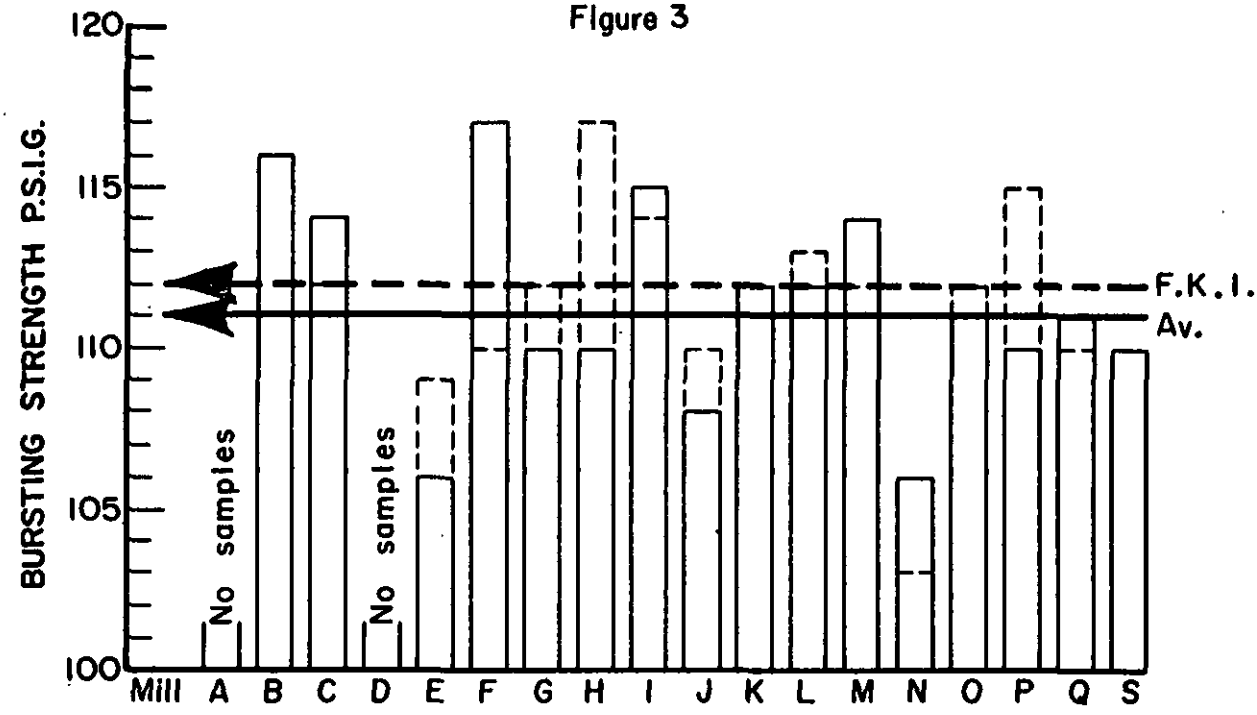
Figure 2



COMPARISON OF CALIPER RESULTS
(Period May 1 - May 31, 1958)

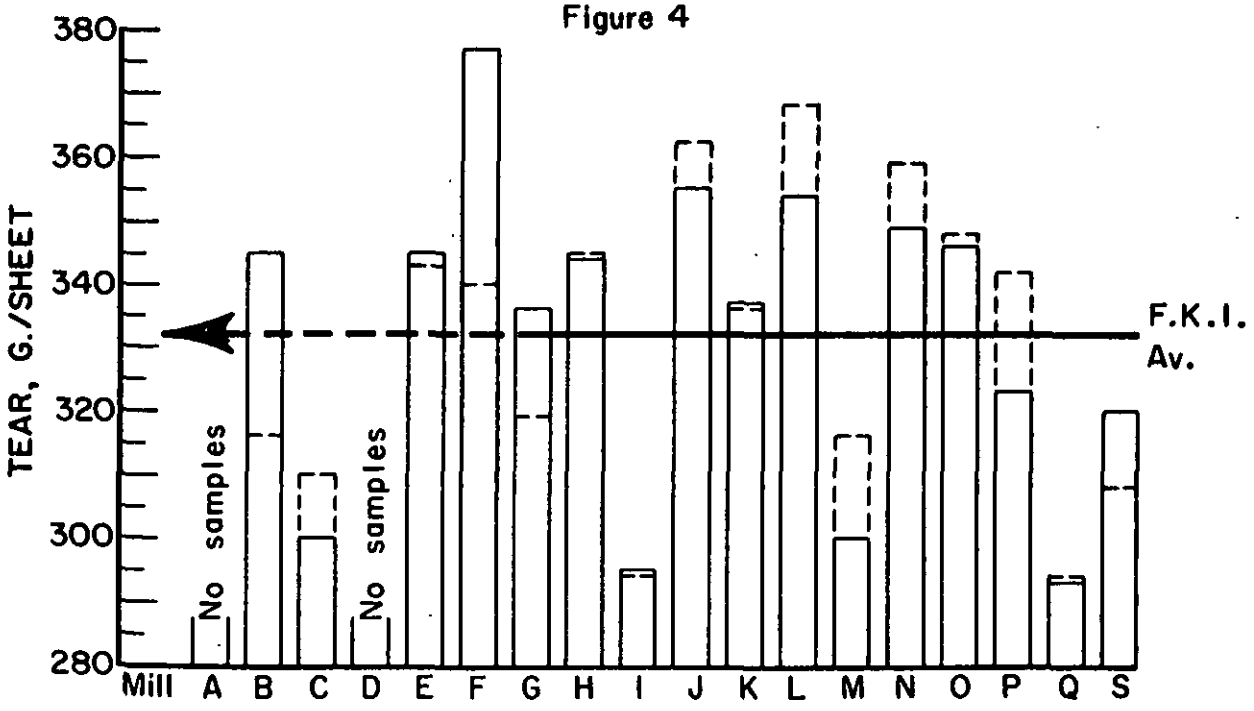
——— Current mill average
- - - - - Cumulative mill average

Figure 3



COMPARISON OF BURSTING STRENGTH RESULTS
(Period May 1 - May 31, 1958)

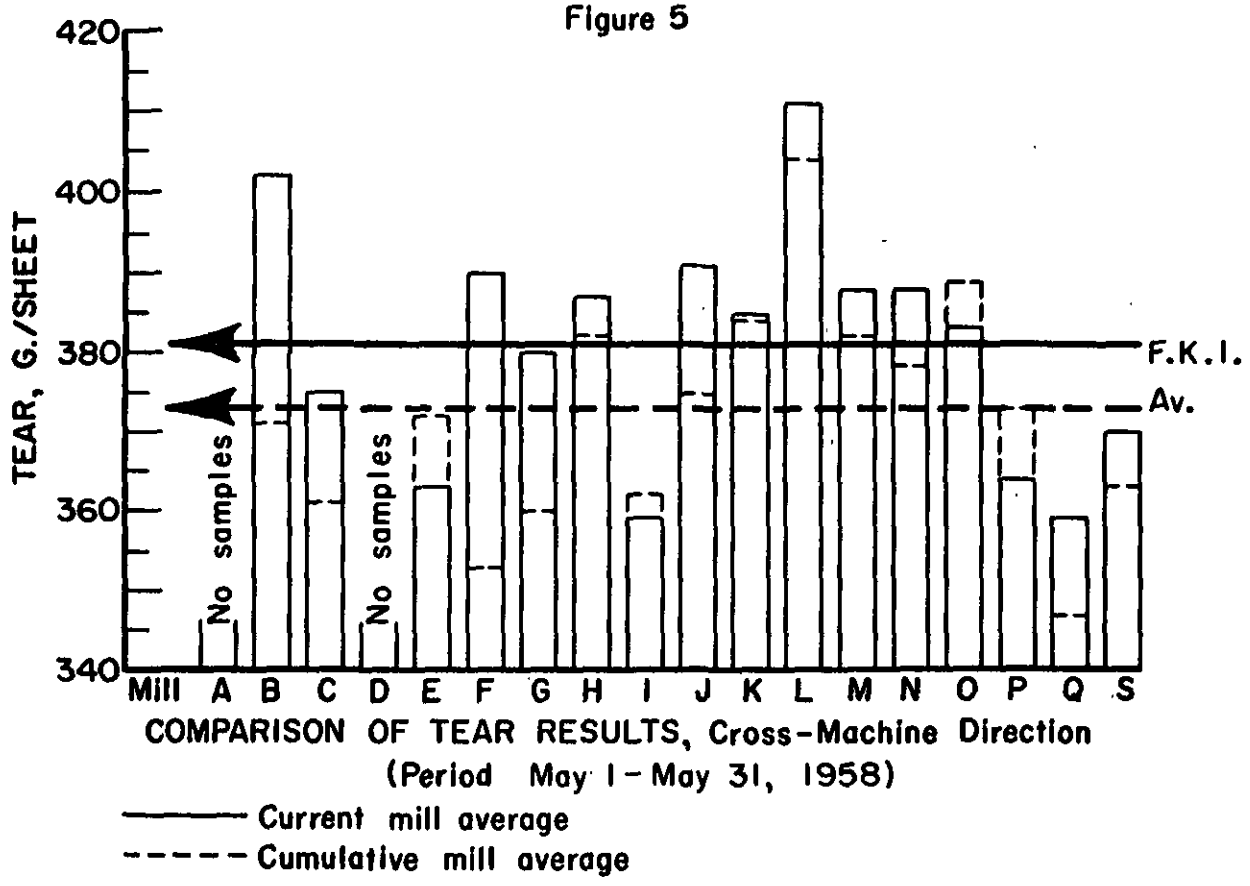
Figure 4



COMPARISON OF TEAR RESULTS, Machine Direction
(Period May 1 - May 31, 1958)

——— Current mill average
- - - - - Cumulative mill average

Figure 5


420
400
380
360
340
TEAR, G./SHEET
No samples
No samples
F.K.I.
Av.
Mill A B C D E F G H I J K L M N O P Q S
COMPARISON OF TEAR RESULTS, Cross-Machine Direction
(Period May 1 - May 31, 1958)
Current mill average
Cumulative mill average

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958

TABLE III

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.

No samples submitted.

TABLE IV

MILL B -- 42-LB. LINERBOARD

178732	W.F.	5/ 5/58	4/24/58	1	44.6	44.0	44.2	13.1	12.4	12.8	123	93	111	408	320	355	440	376	411[a]
178733	W.F.	5/ 5/58	4/24/58	1	44.6	44.0	44.2	13.2	12.2	12.9	133	95	114	416	312	365[a]	440	400	419[a]
178756	W.F.	5/ 7/58	4/29/58	2	44.8	43.4	44.0	12.1	11.7	12.0	139	106	120	376	256	321[a]	448	368	406[a]
178757	W.F.	5/ 7/58	4/30/58	2	44.0	42.6	43.6	12.1	11.8	12.0	137	98	121	384	272	321	432	352	389[a]
178798	W.F	5/12/58	5/ 4/58	2	44.8	43.8	44.2	12.8	12.0	12.3	142	105	124	352	304	333[a]	440	368	405[a]
178831	W.F.	5/19/58	5/11/58	2	45.0	43.6	44.2	12.5	11.9	12.1	132	97	111	400	328	371[a]	408	360	378[a]
178832	W F	5/19/58	5/13/58	1	44.4	43.6	44.0	13.5	12.3	12.7	135	100	114	384	272	351[a]	448	368	404[a]
Current Mill Average							44.1			12.4			116			345			402
Cumulative Mill Average							43.5			12.4			116			316			371
Mill Factor, %							101.4			100.0			100.0			109.2			108.4
Mill Index, %							102.3			97.6			103.6			103.9			107.8

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE V

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178758	W.F.	5/ 8/58	4/15/58	2	43.4	41.4	42.4	12.3	11.1	11.9	126	95	111	312	248	280	384	336	355[a]
178759	W.F.	5/ 8/58	4/15/58	2	42.8	42.0	42.3	12.4	11.0	11.9	137	94	114	320	224	273	392	336	362[a]
178792	W.F.	5/12/58	4/23/58	2	44.0	43.0	43.6	13.1	12.0	12.6	129	92	111	336	280	302[a]	440	320	381[a]
178793	W.F.	5/12/58	4/23/58	2	44.2	42.0	43.4	13.5	11.8	12.6	126	93	110	352	256	307	480	296	379[a]
178794	W.F.	5/12/58	4/25/58	2	45.0	42.8	43.8	13.3	12.0	12.8	142	84	115	392	288	317	432	336	371[a]
178795	W.F.	5/12/58	4/25/58	2	44.2	43.2	43.9	13.2	12.0	12.8	139	89	110	352	240	301[a]	416	320	373[a]
178816	W.F.	5/14/58	4/24/58	2	43.6	42.0	42.9	12.8	11.4	12.1	147	97	124	352	272	317[a]	480	352	399[a]
178817	W.F.	5/14/58	4/24/58	2	43.4	42.2	42.9	12.5	11.6	12.0	145	108	126	376	248	301[a]	464	344	393[a]
178874	W.F.	5/26/58	5/15/58	2	43.4	41.8	42.4	12.4	11.2	11.8	130	88	113	344	256	299[a]	400	304	363[a]
178868	W.F.	5/26/58	5/15/58	2	43.6	42.0	42.7	13.3	12.1	12.6	140	77	111	336	280	305[a]	408	352	375[a]
Current Mill Average.							43.0			12.3			114			300			375
Cumulative Mill Average:							42.9			12.3			112			310			361
Mill Factor, %							100.2			100.0			101.8			96.8			103.9
Mill Index, %							99.8			96.9			101.8			90.4			100.5

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE VI

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb. Max.	Basis Weight, lb. Min.	Basis Weight, lb. Av.	Caliper, points Max.	Caliper, points Min.	Caliper, points Av.	Bursting Strength, p.s.i. gage Max.	Bursting Strength, p.s.i. gage Min.	Bursting Strength, p.s.i. gage Av.	Elmendorf Tear, g./sheet In Max.	Elmendorf Tear, g./sheet In Min.	Elmendorf Tear, g./sheet In Av.	Elmendorf Tear, g./sheet Across Max.	Elmendorf Tear, g./sheet Across Min.	Elmendorf Tear, g./sheet Across Av.
No samples submitted.																			

TABLE VII

MILL E -- 42-LB. LINERBOARD

178776	W.F.	5/ 9/58	4/30/58	-	45.6	43.4	44.8	14.0	13.1	13.5	129	81	104	440	296	370[a]	400	304	360[a]
178777	W.F.	5/ 9/58	5/ 1/58	-	44.4	43.6	44.1	13.2	12.3	12.8	122	83	105	368	304	340[a]	384	336	359[a]
178778	W.F.	5/ 9/58	5/ 2/58	-	41.8	40.6	41.4	12.6	11.9	12.2	117	78	100	360	304	341[a]	384	312	347[a]
178818	W.F.	5/15/58	5/ 7/58	-	45.6	43.8	44.5	14.1	13.0	13.5	115	87	104	448	320	363[a]	392	328	358[a]
178819	W.F.	5/15/58	5/ 8/58	-	44.0	43.0	43.6	13.2	12.4	12.8	125	95	109	416	280	322[a]	400	320	369[a]
178820	W.F.	5/15/58	5/ 9/58	-	45.4	44.4	44.7	13.3	12.4	13.0	127	94	112	416	288	333[a]	424	344	385[a]
Current Mill Average:							43.9			13.0			106			345			363
Cumulative Mill Average:							43.8			12.8			109			343			372
Mill Factor, %							100.2			101.6			97.2			100.6			97.6
Mill Index, %							101.9			102.4			94.6			103.9			97.3

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE VIII

MILL F -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178800	W.F.	5/12/58	4/29/58	-	45.6	42.2	43.8	12.6	11.2	11.9	142	110	128	416	320	366[a]	432	352	391[a]
178801	W.F.	5/12/58	4/29/58	-	44.0	41.8	43.1	12.8	11.6	12.1	131	102	118	392	336	361[a]	432	360	389[a]
178833	W.F.	5/19/58	5/ 6/58	-	44.2	42.8	43.9	13.0	12.1	12.6	136	97	113	496	344	397[a]	448	344	397[a]
178834	W.F.	5/19/58	5/ 6/58	-	44.4	43.4	43.8	13.1	11.9	12.5	127	80	108	448	336	383[a]	416	344	384[a]
Current Mill Average:							43.6			12.3			117			377			390
Cumulative Mill Average:							43.1			12.2			110			340			353
Mill Factor, %							101.2			100.8			106.4			110.9			110.5
Mill Index, %							101.2			96.9			104.5			113.6			104.6

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE IX

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178731	WF1S	5/ 5/58	4/28/58	1	44.0	42.0	42.5	13.2	12.1	12.7	127	87	110	376	272	324[a]	400	320	363[a]
178779	WF1S	5/ 9/58	4/30/58	1	44.0	42.2	43.2	13.4	12.6	13.0	127	83	110	400	304	339[a]	480	352	396[a]
178755	WF1S	5/ 7/58	4/30/58	1	44.0	42.6	43.4	13.9	12.8	13.3	135	94	111	400	280	347[a]	416	336	381[a]
Current Mill Average:							43.1			13.0			110			336			380
Cumulative Mill Average							43.0			13.3			112			319			360
Mill Factor, %							100.2			97.7			98.2			105.3			105.6
Mill Index, %							100.0			102.4			98.2			101.2			101.9

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE X

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178760	W.F.	5/ 8/58	4/30/58	-	44.0	41.2	42.7	12.8	11.3	12.2	135	94	111	360	288	319[a]	432	336	375[a]
178761	W.F.	5/ 8/58	4/30/58	-	44.2	43.2	43.7	13.1	11.6	12.4	135	84	110	400	280	347[a]	432	336	388[a]
178327	W.F.	5/19/58	5/ 9/58	-	45.0	43.4	44.3	12.9	11.4	12.1	127	91	106	400	320	353[a]	408	336	381[a]
178328	W.F.	5/19/58	5/10/58	-	46.0	44.0	44.9	12.7	11.0	12.0	137	91	115	416	312	358[a]	448	368	409[a]
178329	W.F.	5/19/58	5/12/58	-	45.4	44.0	44.3	12.0	11.1	11.7	131	88	110	400	288	348[a]	400	352	383[a]
178330	W.F.	5/19/58	5/12/58	-	44.4	42.6	43.6	12.4	11.6	12.0	127	98	111	392	312	340[a]	424	360	384[a]
Current Mill Average:							43.9			12.0			110			344			387
Cumulative Mill Average							43.6			12.5			117			345			382
Mill Factor, %							100.7			96.0			94.0			99.7			101.3
Mill Index, %							101.9			94.5			98.2			103.6			103.8

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XI

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178635	W.F.	5/ 1/58	3/11/58	1	45.2	42.6	43.8	14.4	12.6	13.6	138	84	110	336	256	301[a]	384	320	357[a]
178636	W.F.	5/ 1/58	3/15/58	1	45.0	44.0	44.4	13.5	12.7	13.2	140	91	118	288	240	272	368	336	349[a]
178637	W.F.	5/ 1/58	3/26/58	1	43.2	41.6	42.2	13.7	12.8	13.3	121	87	107	296	192	260[a]	352	312	333[a]
178638	W.F.	5/ 1/58	3/28/58	1	42.2	40.4	41.2	13.7	12.8	13.2	126	84	107	296	240	267[a]	368	288	331[a]
178639	W.F.	5/ 1/58	4/ 3/58	1	44.2	42.6	43.5	13.8	12.5	13.0	141	87	117	344	280	315[a]	400	320	357[a]
178640	W.F.	5/ 1/58	4/ 8/58	1	44.0	42.6	43.4	13.9	13.0	13.3	142	77	115	368	264	303[a]	416	352	382[a]
178641	W.F.	5/ 1/58	4/11/58	1	44.0	42.6	43.5	13.9	13.0	13.3	152	97	119	344	256	305[a]	408	336	372[a]
178642	W.F.	5/ 1/58	4/14/58	1	43.8	42.2	43.3	14.2	13.0	13.5	143	76	117	344	256	307[a]	416	312	361[a]
178808	W.F	5/13/58	4/18/58	1	44.2	42.0	42.9	14.2	13.1	13.6	150	97	119	344	240	305	424	344	369[a]
178809	W.F.	5/13/58	4/22/58	1	44.0	42.0	42.8	13.9	13.0	13.4	148	90	120	352	280	315[a]	424	336	373[a]
178822	W.F.	5/16/58	4/25/58	1	44.8	43.8	44.3	13.6	12.4	13.1	134	80	115	368	272	305[a]	400	320	372[a]
178823	W F	5/16/58	4/28/58	1	43.2	42.0	42.7	13.9	13.0	13.3	144	96	127	368	248	316[a]	408	336	363[a]
178849	W F	5/22/58	5/ 5/58	1	43.0	41.4	42.1	13.2	12.3	12.8	140	82	107	312	272	291	384	320	347[a]
178850	W.F.	5/22/58	5/ 8/58	1	44.0	42.0	43.3	14.0	12.2	13.1	137	85	111	344	208	272[a]	384	320	353[a]
Current Mill Average.							43.1			13.3			115			295			359
Cumulative Mill Average							42.7			13.3			114			294			362
Mill Factor, %							100.9			100.0			100.9			100.3			99.2
Mill Index, %							100.0			104.7			102.7			88.9			96.2

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XII

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178736	W.	5/ 5/58	4/ 9/58	2	45.8	41.0	43.5	14.8	13.8	14.1	131	88	107	416	320	351[a]	432	344	390[a]
178737	W.	5/ 5/58	4/15/58	2	43.8	41.8	42.6	13.6	12.5	13.0	126	96	113	416	320	350[a]	440	352	390[a]
178824	W.	5/16/58	4/26/58	4	45.8	41.6	42.4	14.5	12.3	13.5	120	88	106	424	328	373[a]	432	352	386[a]
178825	W.	5/16/58	5/ 2/58	2	44.2	40.0	42.8	13.6	13.0	13.3	125	85	106	392	304	347[a]	440	368	397[a]
Current Mill Average:							42.8			13.5			108			355			391
Cumulative Mill Average:							42.7			13.2			110			362			375
Mill Factor, %							100.2			102.3			98.2			98.1			104.3
Mill Index, %							99.3			106.3			96.4			106.9			104.8

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XIII

MILL K -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178643	WFlS	5/ 1/58	4/18/58	2	47.8	43.2	44.9	15.0	13.3	14.2	120	91	105	400	320	350[a]	472	352	400[a]
178644	WFlS	5/ 1/58	4/21/58	2	43.6	40.2	42.0	13.3	12.1	12.8	128	98	115	360	288	318[a]	392	344	361[a]
178730	WFlS	5/ 9/58	4/29/58	2	46.0	42.6	44.1	13.3	12.7	12.9	137	107	120	384	304	346[a]	448	352	398[a]
178731	W.F.	5/ 9/58	5/ 4/58	2	44.2	42.0	42.8	13.2	11.7	12.4	131	88	109	384	304	333	432	336	381[a]
Current Mill Average:							43.4			13.1			112			337			385
Cumulative Mill Average:							42.9			12.3			112			336			384
Mill Factor, %							101.2			106.5			100.0			100.3			100.3
Mill Index, %							100.7			103.1			100.0			101.5			103.2

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XIV

MILL L -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178739	W.F.	5/ 5/58	4/14/58	-	43.8	42.0	42.8	12.2	11.2	11.8	140	94	114	416	312	343[a]	496	376	416[a]
178740	W.B.	5/ 5/58	4/14/58	-	43.2	41.2	42.2	12.3	11.5	11.9	128	77	111	400	296	343[a]	464	368	405[a]
178741	W.B.	5/ 5/58	4/14/58	-	43.4	41.4	42.6	12.2	10.9	11.6	137	91	116	416	328	357[a]	464	352	403[a]
178796	W.B.	5/12/58	4/22/58	1	44.0	41.6	42.6	12.0	11.0	11.5	136	90	111	400	304	345	440	384	403[a]
178797	W.B.	5/12/58	4/22/58	-	44.0	40.0	42.4	12.3	11.0	11.6	120	97	111	400	272	340[a]	424	360	381[a]
178869	W.B.	5/26/58	5/20/58	-	45.0	43.0	44.0	12.7	12.0	12.3	130	102	112	432	344	381[a]	512	392	447[a]
178870	W.B.	5/26/58	5/21/58	-	44.8	43.0	44.0	12.5	11.3	12.0	134	81	110	400	328	367[a]	456	360	421[a]
Current Mill Average							42.9			11.8			112			354			411
Cumulative Mill Average							43.2			12.0			113			368			404
Mill Factor, %							99.3			98.3			99.1			96.2			101.7
Mill Index, %							99.5			92.9			100.0			106.6			110.2

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA—MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XV

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178833	WFLS	5/ 1/58	4/18/58	1	43.6	42.0	42.8	12.8	11.8	12.3	135	98	114	336	256	291	456	344	403[a]
178834	WFLS	5/ 1/58	4/20/58	1	43.6	42.0	42.6	12.5	11.7	12.1	135	83	115	336	256	295[a]	448	336	380[a]
178734	WFLS	5/ 5/58	4/22/58	1	43.2	42.0	42.5	12.8	11.7	12.2	134	98	116	344	232	289[a]	416	336	377[a]
178735	WFLS	5/ 5/58	4/24/58	1	43.0	42.0	42.5	12.5	11.6	12.0	132	108	119	320	224	295	432	352	387[a]
178807	WFLS	5/13/58	5/ 6/58	1	44.2	42.4	43.3	13.1	12.0	12.5	137	96	115	344	272	307	472	352	385[a]
178844	WFLS	5/20/58	5/12/58	1	43.6	42.0	42.9	13.1	12.1	12.5	135	96	112	352	240	295	448	344	387[a]
178845	WFLS	5/20/58	5/14/58	1	43.0	42.0	42.5	12.9	12.0	12.4	134	83	113	344	256	310[a]	512	352	405[a]
178871	WFLS	5/26/58	5/16/58	1	44.0	42.4	43.2	13.0	12.0	12.5	150	95	115	336	272	296	464	336	395[a]
178872	WFLS	5/26/58	5/17/58	1	43.2	41.8	42.5	13.0	12.1	12.5	135	97	112	416	264	306[a]	432	320	371[a]
178873	WFLS	5/26/58	5/19/58	1	43.8	42.2	42.8	13.4	12.4	12.7	140	91	111	360	264	318[a]	416	360	395[a]
Current Mill Average:							42.8			12.4			114			300			388
Cumulative Mill Average:							42.8			12.5			112			316			382
Mill Factor, %							100.0			99.2			101.8			94.9			101.6
Mill Index, %							99.3			97.6			101.8			90.4			104.0

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XVI

MILL N -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178646	S.F.	5/ 1/58	4/23/58	7	45.0	42.4	43.4	14.0	12.8	13.2	137	75	106	416	288	349[a]	424	344	388[a]
Current Mill Average:							43.4			13.2			106			349			388
Cumulative Mill Average:							43.2			13.1			103			359			378
Mill Factor, %							100.5			100.8			102.9			97.2			102.6
Mill Index, %							100.7			103.9			94.6			105.1			104.0

TABLE XVII

MILL O -- 42-LB. LINERBOARD

178646	W.F.	5/20/58	5/ 5/58	2	43.6	42.2	42.7	13.2	12.2	12.5	130	86	109	408	312	354[a]	416	352	382[a]
178647	W.F.	5/20/58	5/ 6/58	2	43.6	41.8	42.7	13.2	12.5	12.9	129	96	113	448	240	338[a]	424	336	385[a]
Current Mill Average:							42.7			12.7			111			346			383
Cumulative Mill Average:							43.2			12.8			112			348			389
Mill Factor, %							98.8			99.2			99.1			99.4			98.5
Mill Index, %							99.1			100.0			99.1			104.2			102.7

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XVIII

MILL P -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178851	WFIS	5/23/58	4/30/58	2	44.0	41.0	42.4	14.1	13.0	13.5	131	91	109	352	280	316[a]	400	320	353[a]
178852	WFIS	5/23/58	5/ 8/58	2	44.0	42.4	43.2	13.7	12.9	13.2	128	95	113	368	264	325[a]	416	344	375[a]
178853	WFIS	5/23/58	5/ 9/58	2	43.2	41.6	42.2	14.1	13.2	13.8	132	92	109	384	296	328[a]	392	328	363[a]
Current Mill Average:							42.6			13.5			110			323			364
Cumulative Mill Average:							42.7			13.6			115			342			373
Mill Factor, %							99.8			99.3			95.7			94.4			97.6
Mill Index, %							98.8			106.3			98.2			97.3			97.6

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XIX

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178742	W F.	5/ 6/58	3/31/58	1	44.4	42.8	43.9	13.3	12.0	12.8	124	96	110	360	248	296[a]	376	336	353[a]
178799	W F	5/12/58	4/ 3/58	1	45.2	42.2	43.8	13.6	12.2	12.9	132	94	112	312	232	282[a]	400	320	352[a]
178806	W.F	5/13/58	4/10/58	1	45.4	43.0	44.2	13.3	12.1	12.9	129	88	110	376	264	305[a]	424	336	366[a]
178821	W F.	5/16/58	4/22/58	1	45.6	42.2	43.9	13.5	12.0	12.9	131	95	111	320	248	287	384	336	363[a]
Current Mill Average							43.9			12.9			111			293			359
Cumulative Mill Average							43.7			12.7			110			294			347
Mill Factor, %							100.5			101.6			100.9			99.7			103.5
Mill Index, %							101.9			101.6			99.1			88.3			96.2

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE IX

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
178645	WF1S	5/ 1/58	4/15/58	1	44.0	41.4	42.7	13.3	11.9	12.5	142	79	109	376	224	311[a]	392	320	361[a]
178738	WF1S	5/ 5/58	4/28/58	1	44.2	40.0	42.4	13.1	11.9	12.5	123	83	104	352	288	321[a]	416	320	366[a]
178854	WF1S	5/23/58	5/14/58	1	44.2	42.0	43.2	15.0	12.2	13.6	140	95	117	392	280	327[a]	416	352	385[a]
Current Mill Average:							42.8			12.9			110			320			370
Cumulative Mill Average:							42.9			12.8			110			308			363
Mill Factor, %							99.8			100.8			100.0			103.9			101.9
Mill Index, %							99.3			101.6			98.2			96.4			99.2

TABLE XII

MILL R -- 47-LB. DRUM LINERBOARD

No samples submitted.

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. As may be noted in Table XXII, the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the conditioning periods varied considerably.

TABLE XXII

Mill Code	Preconditioning R.H., %	Preconditioning Temp., °F.	Preconditioning Time, hr.	Conditioning R.H., %	Conditioning Temp., °F.	Conditioning Time, hr.
A			No samples submitted.			
B		None		50	73	24
C	50	73	24	50	73	24
D			No samples submitted.			
E	34-36	78	8	51-52	72-73	16
F		None		50	73	0.5
G		None		61-64	80-85	--
H		None		50	73	48
I		None		59-72	75-92	--
J		None		53	73	--
K	50	73	24		None	
L		None		48-55	72-73	48
M		None		51-60	61-74	--
N	50	73	24		None	
O		None		50	73	24
P	50	72	24		None	
Q	47-80	67-70	0.5	50	73	48-72
S	47-56	74	24	47-50	74	2

A summary of the Institute and mill test results for the current period is shown in Table XXIII, and a comparison of differences between Institute and mill test results is given in Table XXIV for the current

period and the two previous periods. The comparisons for individual sample lots are given in Tables XXV to XLII, for the 42-lb. liner samples. A comparison of the special drum stock is given in Table XLIII. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XXIII and XXIV reveals the level of agreement between mill and Institute data for basis weight, caliper, bursting strength, and Elmendorf tear. Table XXIII shows the over-all average difference between Institute and mill test results based on the data for all sample lots submitted by each mill for the current period. In addition, the maximum difference encountered in comparing the Institute and mill test results for a given sample lot is shown. In Table XXIV, the over-all average differences shown for each test in Table XXIII have been calculated on a percentage basis for each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

It may be noted in Table XXIV that the maximum average differences (per cent) between the average basis weight results of the Institute and those of a given mill on corresponding samples is three per cent for the current period. By comparison, the maximum average differences (per cent) noted for the previous two periods was also three per cent. Further, it may be noted that the average basis weight results for Mills C, K, N, and P were higher than those for the Institute, and the average results for the other mills were lower. The variation associated with Mill P appeared to be excessive.

The maximum variation in caliper for the current period is five per cent. This is in line with the maximum variation of six per cent for the previous

two periods. Compared with the Institute's results, the average test result for Mill H was higher, and the average test results for the other mills were lower. The variations of five per cent associated with Mills E and J may be excessive.

It may be noted in Table XXIII that the bursting strength results exhibited a maximum variation of six per cent for the current period. The average results for Mills H, L, N, O, and Q were higher than those for the Institute, the average results for Mills B and E were the same, and the average results for the other mills were lower. The variations of six per cent associated with Mills K and N may be excessive.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills F, G, K, L, M, O, P, and Q were higher than those for the Institute, and the results for the other mills were lower. The maximum variation for the current period was twenty per cent. For the current period the variations associated with the results for Mills E, I, M, and S appear to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills F, G, H, K, L, M, N, O, P, and Q were higher than those for the Institute, and the average results for the other mills were lower. The maximum variation for the current period was thirteen per cent. This maximum variation which was associated with the result for Mill K appears to be excessive.

SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS)

Mills*	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S
No. Samples Compared	0	7	10	0	6	4	3	6	14	4	4	7	10	1	2	3	4	3
Basis Weight																		
Institute		44.1	43.0		43.9	43.6	43.1	43.9	43.1	42.8	43.4	42.9	42.8	43.4	42.7	42.6	43.9	42.8
Mill		43.2	43.1		43.6	43.0	42.4	43.7	42.2	41.9	43.5	42.4	42.6	43.8	42.6	43.8	43.2	42.6
Av. Diff.**		-0.9	+0.1		-0.3	-0.6	-0.7	-0.2	-0.9	-0.9	+0.1	-0.5	-0.2	+0.4	-0.1	+1.2	-0.7	-0.2
Max. Diff.***		-1.3	+0.5		-2.0	-1.2	-0.7	-0.5	-2.1	-1.7	+0.9	-1.6	-0.9	+0.4	-0.1	+1.6	-1.3	-0.6
Caliper																		
Institute		12.4	12.3		13.0	12.3	13.0	12.0	13.3	13.5	13.1	11.8	12.4	13.2	12.7	13.5	12.9	12.9
Mill		12.2	11.9		12.3	12.0	12.6	12.1	13.0	12.8	12.7	11.3	12.3	13.0	12.4	13.4	12.8	12.4
Av. Diff.**		-0.2	-0.4		-0.7	-0.3	-0.4	+0.1	-0.3	-0.7	-0.4	-0.5	-0.1	-0.2	-0.3	-0.1	-0.1	-0.5
Max. Diff.***		-0.4	-0.5		-1.1	-0.3	-0.6	±0.1	-0.5	-1.3	-0.5	-0.6	±0.2	-0.2	-0.4	-0.5	-0.2	-0.7
Bursting Strength																		
Institute		116	114		106	117	110	110	115	108	112	112	114	106	111	110	111	110
Mill		116	111		106	115	109	112	110	107	105	113	108	112	113	109	115	107
Av. Diff.**		0	-3		0	-2	-1	+2	-5	-1	-7	+1	-6	+6	+2	-1	+4	-3
Max. Diff.***		-6	-10		+7	-7	-3	+3	-15	-3	-8	-4	-10	+6	+3	-2	+7	-10
Tearing Strength, in																		
Institute		345	300		345	377	336	344	295	355	337	354	300	349	346	323	293	320
Mill		323	284		308	378	354	331	250	342	355	374	337	344	356	347	308	256
Av. Diff.**		-22	-16		-37	+1	+18	-13	-45	-13	+18	+20	+37	-5	+10	+24	+15	-64
Max. Diff.***		-51	-40		-73	-34	+25	-41	-71	-19	+24	+148	+48	-5	+15	+53	+23	-72
Tearing Strength, across																		
Institute		402	375		363	390	380	387	359	391	385	411	388	388	383	364	359	370
Mill		385	349		354	405	418	400	340	379	435	426	400	398	400	399	384	352
Av. Diff.**		-17	-26		-9	+15	+38	+13	-19	-12	+50	+15	+12	+10	+17	+35	+25	-18
Max. Diff.***		-33	-44		-22	+30	+64	+30	-66	-39	+84	+102	+40	+10	+21	+57	+36	-24

* Comparison based on averages involved only those samples on which mill test data were submitted.
** Average difference is the difference between the Institute mill average and the mill average based on mill test data.
*** Maximum difference encountered in comparing the Institute average and the mill averages for any sample submitted by that particular mill.

Mill	Period	Basis Weight	Caliper	Burst	Tear, across	Tear, in	Tear, across
A	Current	-1	-3	-0.9	-4	+4	-3.5
	130th	-0.5	-3	+5	+7	+3	+0.5
	129th	-0.7	-3	0	+3	+3	+3
B	Current	-2	-2	-6	+5	-15	+13
	130th	-0.7	-0.7	+11	-15	-11	-9
	129th	-2	-2	+0.9	-11	-4	-7
C	Current	+0.2	-3	-3	+0.9	+9	+4
	130th	+0.2	-3	0	+0.9	+3	+3
	129th	-0.2	-2	+2	+0.9	+1	-1
D	Current	--	--	--	--	+12	+3
	130th	--	--	--	--	+9	+8
	129th	--	--	--	--	+6	+2
E	Current	-0.7	-5	0	-11	-1	+3
	130th	-0.2	-3	0	-10	0	+2
	129th	+0.2	-2	+4	-4	+1	+6
F	Current	-1	-2	-2	+0.3	+3	+4
	130th	-0.7	-2	+2	+0.3	+13	+15
	129th	-0.5	-2	-0.9	+3	+7	+9
G	Current	-2	-3	-0.9	+5	+7	+10
	130th	-1	-2	+2	+18	+2	+12
	129th	-3	-3	+0.9	-3	+3	+6
H	Current	-0.5	+0.8	+0.8	--	+5	+7
	130th	-0.7	+0.8	+0.8	--	+2	+3
	129th	-0.3	+0.8	+0.8	--	+2	+3
I	Current	--	--	--	--	--	--
	130th	--	--	--	--	--	--
	129th	--	--	--	--	--	--

Mill	Period	Basis Weight	Caliper	Burst	Tear, across	Tear, in	Tear, across
J	Current	--	--	--	--	--	--
	130th	--	--	--	--	--	--
	129th	--	--	--	--	--	--
K	Current	-0.2	-3	-6	+13	-13	-15
	130th	-1.7	-0.7	+11	-15	-11	-11
	129th	-1.7	-2	+0.9	-11	-7	-7
L	Current	-1	-4	+0.9	+4	+9	+4
	130th	-0.5	-3	+3	+3	+7	+3
	129th	-0.7	-3	+0.9	-1	+7	-1
M	Current	-0.5	-0.8	-5	+3	+12	+3
	130th	+0.2	0	-6	+2	+9	+8
	129th	-0.7	0	-5	+6	+6	+2
N	Current	+0.9	-2	+6	+3	-1	+3
	130th	+0.7	-2	+5	+2	0	+2
	129th	-0.2	-2	+4	+6	+1	+6
O	Current	-0.2	-2	+2	+4	+3	+4
	130th	+1	-2	+4	+2	+13	+15
	129th	-0.5	-2	+2	+6	+7	+9
P	Current	+3	-0.7	-0.9	+7	+7	+10
	130th	-1	-1	-0.9	+2	+2	+12
	129th	+0.9	-1	+0.9	+6	+3	+6
Q	Current	+0.7	+0.8	--	--	+5	+7
	130th	--	+0.8	--	--	+2	+3
	129th	--	+0.8	--	--	+2	+3
R	Current	+0.5	--	--	--	--	--
	130th	--	--	--	--	--	--
	129th	--	--	--	--	--	--

COMPARISON OF INSTITUTE AND MILL DATA—MAY 1 THROUGH MAY 31, 1958

TABLE XXV

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
No samples submitted																		

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

178732	W.F.	4/24/58	1	44.2	42.9	-1.3	12.8	12.6	-0.2	111	112	+1	355	326	-29	411[a]	396	-15
178733	W.F.	4/24/58	1	44.2	43.3	-0.9	12.9	12.8	-0.1	114	113	-1	365[a]	325	-40	419[a]	397	-22
178756	W.F.	4/29/58	2	44.0	42.8	-1.2	12.0	12.0	0.0	120	116	-4	321[a]	313	- 8	406[a]	388	-18
178757	W.F.	4/30/58	2	43.6	42.9	-0.7	12.0	11.7	-0.3	121	119	-2	321	335	+14	389[a]	391	+ 2
178798	W.F.	5/ 4/58	2	44.2	43.6	-0.6	12.3	12.1	-0.2	124	118	-6	333[a]	317	-16	405[a]	372	-33
178831	W.F.	5/11/58	2	44.2	43.7	-0.5	12.1	12.1	0.0	111	116	+5	371[a]	320	-51	378[a]	371	- 7
178832	W.F.	5/13/58	1	44.0	43.2	-0.8	12.7	12.3	-0.4	114	116	+2	351[a]	322	-29	404[a]	378	-26
Current Mill Average				44.1	43.2	-0.9	12.4	12.2	-0.2	116	116	0	345	323	-22	402	385	-17

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XXVII

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178758	W F.	4/15/58	2	42.4	42.6	+0.2	11.9	11.6	-0.3	111	112	+ 1	280	286	+ 6	355[a]	337	-18
178759	W F.	4/15/58	2	42.3	42.8	+0.5	11.9	11.6	-0.3	114	111	- 3	273	272	- 1	362[a]	337	-25
178792	W F.	4/23/58	2	43.6	43.4	-0.2	12.6	12.2	-0.4	111	109	- 2	302[a]	289	-13	381[a]	348	-33
178793	W.F.	4/23/58	2	43.4	43.2	-0.2	12.6	12.1	-0.5	110	108	- 2	307	287	-20	379[a]	350	-29
178794	W.F.	4/25/58	2	43.8	43.5	-0.3	12.8	12.3	-0.5	115	108	- 7	317	291	-26	371[a]	343	-28
178795	W.F.	4/25/58	2	43.9	43.7	-0.2	12.8	12.3	-0.5	110	107	- 3	301[a]	287	-14	373[a]	331	-42
178816	W.F.	4/24/58	2	42.9	43.0	+0.1	12.1	11.8	-0.3	124	117	- 7	317[a]	277	-40	399[a]	355	-44
178817	W F	4/24/58	2	42.9	42.7	-0.2	12.0	11.6	-0 4	126	116	-10	301[a]	277	-24	393[a]	356	-37
178874	W.F	5/15/58	2	42.4	42.8	+0.4	11.8	11.7	-0 1	113	110	- 3	299[a]	269	-30	363[a]	369	+ 6
178868	W.F.	5/15/58	2	42.7	43.0	+0.3	12.6	12.2	-0 4	111	114	+ 3	305[a]	305	0	375[a]	361	-14
Current Mill Average				43.0	43.1	+0.1	12.3	11.9	-0.4	114	111	- 3	300	284	-16	375	349	-26

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
No samples submitted.																		

TABLE XXIX

MILL E -- 42-LB. LINERBOARD

178776	W.F.	4/30/58	-	44.8	42.8	-2.0	13.5	12.8	-0.7	104	104	0	370[a]	297	-73	360[a]	345	-15
178777	W.F.	5/ 1/58	-	44.1	43.8	-0.3	12.8	12.3	-0.5	105	104	-1	340[a]	301	-39	359[a]	356	- 3
178778	W.F.	5/ 2/58	-	41.4	41.6	+0.2	12.2	12.0	-0.2	100	101	+1	341[a]	305	-36	347[a]	336	-11
178818	W.F.	5/ 7/58	-	44.5	45.4	+0.9	13.5	12.4	-1.1	104	111	+7	363[a]	333	-30	358[a]	373	-15
178819	W.F.	5/ 8/58	-	43.6	43.5	-0.1	12.8	12.2	-0.6	109	108	-1	322[a]	309	-13	369[a]	347	-22
178820	W.F.	5/ 9/58	-	44.7	44.5	-0.2	13.0	12.3	-0.7	112	109	-3	333[a]	303	-30	385[a]	368	-17
Current Mill Average				43.9	43.6	-0.3	13.0	12.3	-0.7	106	106	0	345	308	-37	363	354	- 9

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XXX

MILL F -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178800	F	4/29/58	-	43.8	42.6	-1.2	11.9	11.6	-0.3	128	121	-7	366[a]	375	+ 9	391[a]	407	+16
178801	F.	4/29/58	-	43.1	42.4	-0.7	12.1	11.8	-0.3	118	119	+1	361[a]	392	+31	389[a]	419	+30
178833	F.	5/ 6/58	-	43.9	43.6	-0.3	12.6	12.4	-0.2	113	110	-3	397[a]	363	-34	397[a]	395	- 2
178834	F.	5 6 58	-	43.8	43.5	-0.3	12.5	12.3	-0.2	108	111	+3	383[a]	381	- 2	384[a]	399	+15
Current Mill Average				43.6	43.0	-0.6	12.3	12.0	-0.3	117	115	-2	377	378	+ 1	390	405	+15

TABLE XXXI

MILL G -- 42-LB. LINERBOARD

178731	F1S	4/28/58	1	42.5	41.8	-0.7	12.7	12.1	-0.6	110	108	-2	324[a]	328	+ 4	363[a]	427	+64
178779	F1S	4/30/58	1	43.2	42.6	-0.6	13.0	12.8	-0.2	110	110	0	339[a]	364	+25	396[a]	416	+20
178755	F1S	4/30/58	1	43.4	42.7	-0.7	13.3	12.7	-0.6	111	108	-3	347[a]	370	+23	381[a]	409	+28
Current Mill Average				43.1	42.4	-0.7	13.0	12.6	-0.4	110	109	-1	336	354	+18	380	418	+38

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA—MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XXXII

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178760	W.F.	4/30/58	-	42.7	42.3	-0.4	12.2	12.1	-0.1	111	114	+3	319[a]	324	+ 5	375[a]	405	+30
178761	W.F.	4/30/58	-	43.7	43.2	-0.5	12.4	12.4	0.0	110	112	+2	347[a]	327	-20	388[a]	405	+17
178827	W.F	5/ 9/58	-	44.3	44.0	-0.3	12.1	12.2	+0.1	106	109	+3	353[a]	312	-41	381[a]	383	+ 2
178828	W.F.	5/10/58	-	44.9	44.5	-0.4	12.0	12.0	0.0	115	115	0	358[a]	340	-18	409[a]	399	-10
178829	W.F.	5/12/58	-	44.3	44.7	+0.4	11.7	11.6	-0.1	110	112	+2	348[a]	336	-12	383[a]	401	+18
178830	W.F.	5/12/58	-	43.6	43.6	0.0	12.0	12.1	+0.1	111	111	0	340[a]	348	+ 8	384[a]	404	+20
Current Mill Average				43.9	43.7	-0.2	12.0	12.1	+0.1	110	112	+2	344	331	-13	387	400	+13

[a]This average includes the readings for one or more specimens which tere beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XXXIII

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178635	W.F.	3/11/58	1	43.8	42.5	-1.3	13.6	13.3	-0.3	110	103	- 7	301[a]	230	-71	357[a]	334	-23
178636	W.F.	3/15/58	1	44.4	42.3	-2.1	13.2	13.3	+0.1	118	103	-15	272	246	-26	349[a]	333	-16
178637	W.F.	3/26/58	1	42.2	41.6	-0.6	13.3	13.2	-0.1	107	105	- 2	260[a]	243	-17	333[a]	339	+ 6
178638	W.F.	3/28/58	1	41.2	41.6	+0.4	13.2	13.1	-0.1	107	104	- 3	267[a]	231	-36	331[a]	317	-14
178639	W.F.	4/ 3/58	1	43.5	42.4	-1.1	13.0	12.9	-0.1	117	109	- 8	315[a]	272	-43	357[a]	354	- 3
178640	W.F.	4/ 8/58	1	43.4	42.1	-1.3	13.3	12.9	-0.4	115	111	- 4	303[a]	261	-42	382[a]	355	-27
178641	W.F.	4/11/58	1	43.5	42.3	-1.2	13.3	13.1	-0.2	119	110	- 9	305[a]	250	-55	372[a]	355	-17
178642	W.F.	4/14/58	1	43.3	42.3	-1.0	13.5	13.0	-0.5	117	110	- 7	307[a]	249	-58	361[a]	348	-13
178808	W.F.	4/18/58	1	42.9	42.6	-0.3	13.6	13.2	-0.4	119	114	- 5	305	244	-61	369[a]	335	-34
178809	W.F.	4/22/58	1	42.8	42.0	-0.8	13.4	13.0	-0.4	120	116	- 4	315[a]	260	-55	373[a]	353	-20
178822	W.F.	4/25/58	1	44.3	42.3	-2.0	13.1	13.0	-0.1	115	110	- 5	305[a]	270	-35	372[a]	360	-12
178823	W.F.	4/28/58	1	42.7	42.0	-0.7	13.3	12.9	-0.4	127	114	-13	316[a]	263	-53	363[a]	360	- 3
178849	W.F.	5/ 5/58	1	42.1	41.9	-0.2	12.8	12.7	-0.1	107	115	+ 8	291	228	-63	347[a]	281	-66
178850	W.F.	5/ 8/58	1	43.3	42.2	-1.1	13.1	13.1	0.0	111	109	- 2	272[a]	259	-13	353[a]	337	-16
Current Mill Average				43.1	42.2	-0.9	13.3	13.0	-0.3	115	110	- 5	295	250	-45	359	340	-19

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1958 (Continued)

TABLE XXXIV

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178736	w	4/ 9/58	2	43.5	41.8	-1.7	14.1	12.8	-1.3	107	109	+2	351[a]	343	- 8	390[a]	395	+ 5
178737	w.	4/15/58	2	42.6	41.9	-0.7	13.0	12.5	-0.5	113	110	-3	350[a]	331	-19	390[a]	351	-39
178824	w.	4 26/58	4	42.4	41.8	-0.6	13.5	13.0	-0.5	106	105	-1	373[a]	360	-13	386[a]	403	+17
178825	w.	5/ 2/58	2	42.8	42.1	-0.7	13.3	12.8	-0.5	106	104	-2	347[a]	335	-12	397[a]	369	-28
Current Mill Average				42.8	41.9	-0.9	13.5	12.8	-0.7	108	107	-1	355	342	-13	391	379	-12

TABLE XXXV

MILL K -- 42-LB. LINERBOARD

178643	wFIS	4/18/58	2	44.9	44.8	-0.1	14.2	13.9	-0.3	105	98	-7	350[a]	370	+20	400[a]	484	+84
178644	wFIS	4/21/58	2	42.0	42.9	+0.9	12.8	12.4	-0.4	115	107	-8	318[a]	342	+24	361[a]	395	+34
178780	FIS	4/29/58	2	44.1	43.7	-0.4	12.9	12.4	-0.5	120	112	-8	346[a]	353	+ 7	398[a]	429	+31
178781	w F.	5/ 4/58	2	42.8	42.8	0.0	12.4	12.1	-0.3	109	104	-5	333	353	+20	381[a]	433	+52
Current Mill Average				43.4	43.5	+0.1	13.1	12.7	-0.4	112	105	-7	337	355	+18	385	435	+50

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XXXVI

MILL L -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178739	W.F.	4/14/58	-	42.8	42.0	-0.8	11.8	11.3	-0.5	114	110	-4	343[a]	302	- 41	416[a]	369	- 47
178740	W.B.	4/14/58	-	42.2	42.1	-0.1	11.9	11.4	-0.5	111	114	+3	343[a]	417	+ 74	405[a]	484	+ 79
178741	W.B.	4/14/58	-	42.6	41.6	-1.0	11.6	11.0	-0.6	116	119	+3	357[a]	505	+148	403[a]	505	+102
178796	W.B.	4/22/58	1	42.6	42.6	0.0	11.5	11.1	-0.4	111	111	0	345	363	+ 18	403[a]	412	+ 9
178797	W.B.	4/22/58	-	42.4	42.6	+0.2	11.6	11.2	-0.4	111	114	+3	340[a]	349	+ 9	381[a]	389	+ 8
178869	W.B.	5/20/58	-	44.0	43.2	-0.8	12.3	11.7	-0.6	112	111	-1	381[a]	341	- 40	447[a]	416	- 31
178870	W.B.	5/21/58	-	44.0	42.4	-1.6	12 0	11.4	-0.6	110	110	0	367[a]	341	- 26	421[a]	409	- 12
Current Mill Average				42.9	42.4	-0.5	11.8	11.3	-0.5	112	113	+1	354	374	+ 20	411	426	+ 15

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note. All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XXXVII

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch No.	Basis Weight, lb			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178633	wF1S	4/18/58	1	42.8	42.8	0.0	12.3	12.1	-0.2	114	111	- 3	291	336	+45	403[a]	403	0
178634	wF1S	4/20/58	1	42.6	42.6	0.0	12.1	12.1	0.0	115	109	- 6	295[a]	342	+47	380[a]	403	+23
178734	wF1S	4/22/58	1	42.5	42.7	+0.2	12.2	12.1	-0.1	116	109	- 7	289[a]	333	+44	377[a]	407	+30
178735	wF1S	4/24/58	1	42.5	42.6	+0.1	12.0	12.2	+0.2	119	109	-10	295	331	+36	387[a]	401	+14
178807	wF1S	5/ 6/58	1	43.3	42.4	-0.9	12.5	12.4	-0.1	115	110	- 5	307	326	+19	385[a]	404	+19
178844	wF1S	5/12/58	1	42.9	42.6	-0.3	12.5	12.3	-0.2	112	107	- 5	295	343	+48	387[a]	396	+ 9
178845	wF1S	5/14/58	1	42.5	42.7	+0.2	12.4	12.3	-0.1	113	108	- 5	310[a]	345	+35	405[a]	383	-22
178871	wF1S	5/16/58	1	43.2	42.7	-0.5	12.5	12.4	-0.1	115	107	- 8	296	341	+45	395[a]	378	-17
178872	wF1S	5/17/58	1	42.5	42.3	-0.2	12.5	12.3	-0.2	112	107	- 5	306[a]	333	+27	371[a]	411	+40
178873	wF1S	5/19/58	1	42.8	42.8	0.0	12.7	12.5	-0.2	111	109	- 2	318[a]	336	+18	395[a]	415	+20
Current Mill Average				42.8	42.6	-0.2	12.4	12.3	-0.1	114	108	- 6	300	337	+37	388	400	+12

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COOPERATIVE INSTITUTIONAL MILL DATA -- MAY 1, THROUGH MAY 31, 1958 (continued)

TABLE XXXVIII

MILL N -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis weight, lb. IPC	Basis weight, lb. Mill	Basis weight, lb. Diff.	Caliper, points IPC	Caliper, points Mill	Caliper, points Diff.	Bursting Strength, p.s.i. gage IPC	Bursting Strength, p.s.i. gage Mill	Bursting Strength, p.s.i. gage Diff.	Elmendorf Tear, g./sheet In: IPC	Elmendorf Tear, g./sheet In: Mill	Elmendorf Tear, g./sheet In: Diff.	Elmendorf Tear, g./sheet Across IPC	Elmendorf Tear, g./sheet Across Mill	Elmendorf Tear, g./sheet Across Diff.
173646	S.F.	4/23/58	7	43.4	43.8	+0.4	13.2	13.0	-0.2	106	112	+6	349[a]	344	- 5	388[a]	398	+10
Current Mill Average				43.4	43.8	+0.4	13.2	13.0	-0.2	106	112	+6	349	344	-5	388	398	+10

TABLE XXXIX

MILL O -- 42-LB. LINERBOARD

173846	W.F.	5/ 5/58	2	42.7	42.7	0.0	12.5	12.4	-0.1	109	112	+3	354[a]	360	+ 6	382[a]	403	+21
173847	W.F.	5/ 6/58	2	42.7	42.6	-0.1	12.9	12.5	-0.4	113	113	0	338[a]	353	+15	385[a]	398	+13
Current Mill Average				42.7	42.6	-0.1	12.7	12.4	-0.3	111	113	+2	346	356	+10	383	400	+17

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XL

MILL P -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178851	wFlS	4/30/58	2	42.4	44.0	+1.6	13.5	13.0	-0.5	109	108	-1	316[a]	369	+53	353[a]	384	+31
178852	FlS	5/ 8/58	2	43.2	43.8	+0.6	13.2	13.5	+0.3	113	111	-2	325[a]	336	+11	375[a]	392	+17
178853	wFlS	5/ 9/58	2	42.2	43.7	+1.5	13.8	13.8	0.0	109	108	-1	328[a]	337	+ 9	363[a]	420	+57
Current Mill Average				42.6	43.8	+1.2	13.5	13.4	-0.1	110	109	-1	323	347	+24	364	399	+35

TABLE XLI

MILL Q -- 42-LB. LINERBOARD

178742	wF.	3/31/58	1	43.9	43.2	-0.7	12.8	12.9	+0.1	110	117	+7	296[a]	313	+17	353[a]	389	+36
178799	wF.	4/ 3/58	1	43.8	43.1	-0.7	12.9	12.7	-0.2	112	113	+1	282[a]	305	+23	352[a]	387	+35
178806	wF	4/10/58	1	44.2	42.9	-1.3	12.9	12.8	-0.1	110	115	+5	305[a]	311	+ 6	366[a]	380	+14
178821	wF	4/22/58	1	43.9	43.5	-0.4	12.9	12.9	0.0	111	116	+5	287	304	+17	363[a]	382	+19
Current Mill Average				43.9	43.2	-0.7	12.9	12.8	-0.1	111	115	+4	293	308	+15	359	384	+25

[a] This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA—MAY 1 THROUGH MAY 31, 1958 (continued)

TABLE XLII

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
178645	WF1S	4/15/58	1	42.7	42.4	-0.3	12.5	11.8	-0.7	109	111	+ 2	311[a]	255	-56	361[a]	353	- 8
178738	WF1S	4/28/58	1	42.4	41.8	-0.6	12.5	11.9	-0.6	104	103	- 1	321[a]	256	-65	366[a]	342	-24
178854	WF1S	5/14/58	1	43.2	43.6	+0.4	13.6	13.5	-0.1	117	107	-10	327[a]	255	-72	385[a]	361	-24
Current Mill Average				42.8	42.6	-0.2	12.9	12.4	-0.5	110	107	- 3	320	256	-64	370	352	-18

TABLE XLIII

MILL R -- 47-LB. DRUM LINERBOARD

No samples submitted

[a]This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note All "current mill average" data are calculated from the totals of the individual readings.